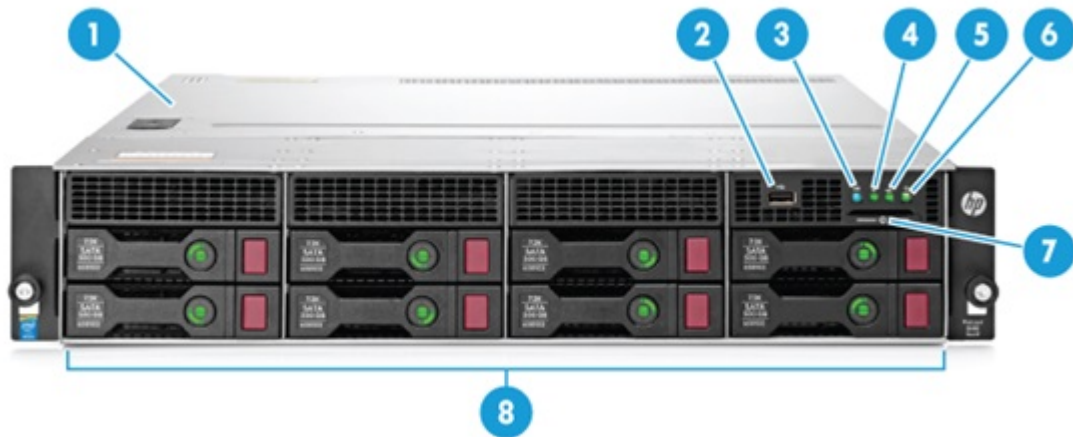


### Overview

The HP ProLiant DL80 Gen9 Server is designed with affordable storage, networking and processor scalability, and manageability in a 2U server for cost conscious service provider and SMBs. Apart from basic IT infrastructure workloads this server is ideal for running storage capacity intensive applications like cold storage, back-up due to compelling cost/GB that it offers.



#### Front View

1. Access Panel (Top Cover)
2. USB 2.0 connector
3. UID button/LED
4. Health LED
5. NIC status LED
6. Power On/Standby button and system power LED
7. Serial label pull tab
8. 8-bay LFF drive cage bay

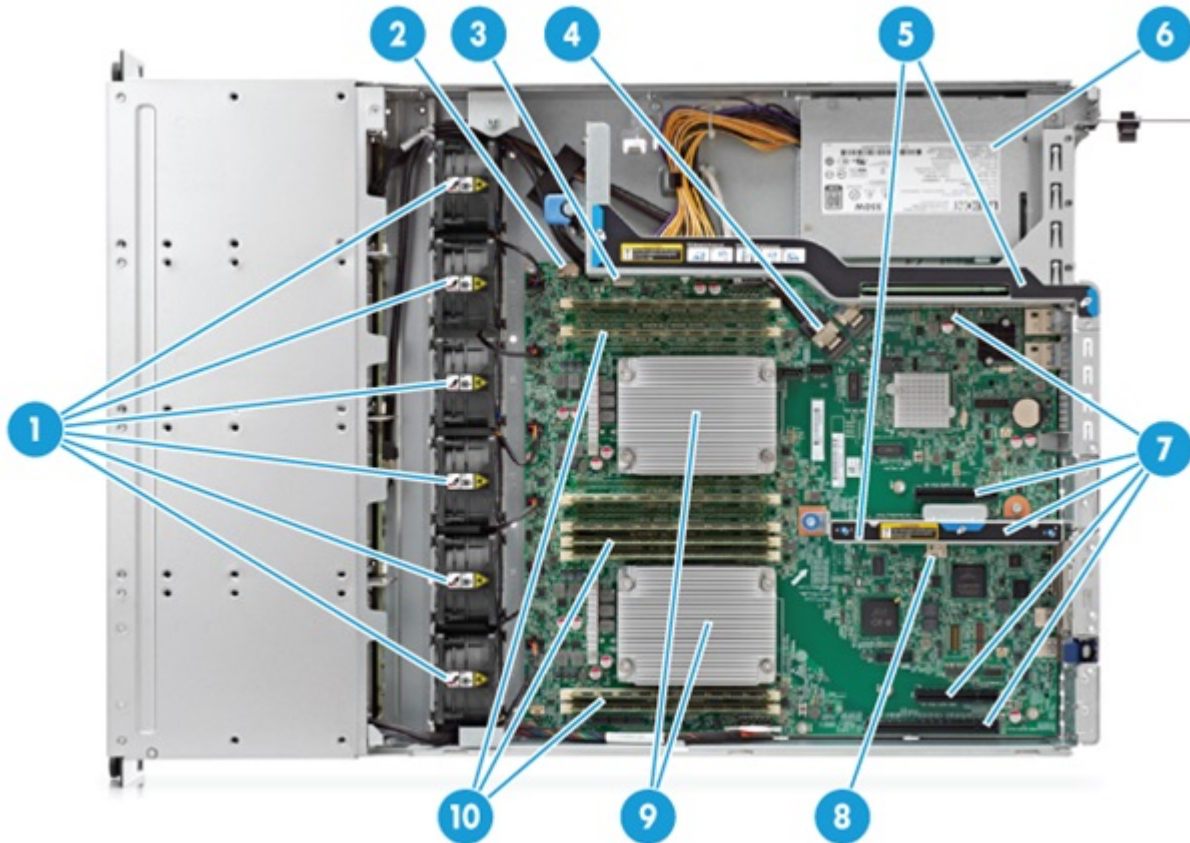


#### Rear view

1. Slot 7 PCIe3 x16 low-profile, standup
2. Slot 6 PCIe3 x8 low-profile, standup
3. Slot 4 PCIe3 x8 low-profile, riser (optional)
4. Slot 5 PCIe3 x8 FlexibleLOM riser (optional)
5. Slot 4 PCIe3 x16 low-profile, standup
6. Slot 3 PCIe3 x8 low-profile, standup
7. Slot 1 PCIe3 x16 low-profile, standup
8. Slot 1 PCIe3 x16 full-height, full-length GPU riser (optional) or Slot 1 PCIe3 x8 (8, 4, 1) full-height, half-length riser (optional)
9. Slot 2 PCIe3 x8 full-height half-length riser (optional)
10. Power supply power connection
11. Power supply status LED

### Overview

12. Non-hot-plug power supply
13. Embedded 2x1GbE network adapter
14. UID LED
15. Video connector
16. USB 3.0 connectors



### Internal View

1. Fans shown with 6 Hot-swap fans
2. HP Smart Storage Battery connector (optional)
3. Internal USB 3.0 connector
4. Embedded HP Smart Array B140i Controller
5. PCIe riser kits
6. (Under) Non-Hot Plug HP Power supply
7. PCIe 3.0 slots
8. MicroSD card slot
9. 2 Processors, heatsink showing, with HP Smart Socket Guide
10. HP DDR4 SmartMemory DIMM slots. Shown fully populated in 8 slots (4 per processor)

### Standard Features

**NOTE:** For more information regarding Intel Xeon processors, please see the following <http://www.intel.com/xeon>.

Intel® Xeon® processor E5-2600 v3 product family is designed to deliver the best combination of performance, built-in capabilities, and cost-effectiveness. One (or two) of the following Intel® Xeon® E5-2600 v3 processors based on the model.

Processor	Model	CPU frequency	Cores	L3 Cache	Power	QPI	DDR4 Hz
One of the following depending on Model	E5-2660v3	2.6GHz	10	25MB	105W	9.6GT/s	2133
	E5-2650v3	2.3GHz	10	25MB	105W	9.6GT/s	2133
	E5-2650Lv3	1.8GHz	12	30MB	65W	9.6GT/s	2133
	E5-2640v3	2.6GHz	8	20MB	90W	8.0GT/s	1866
	E5-2630v3	2.4Ghz	8	20MB	85W	8.0GT/s	1866
	E5-2630Lv3	1.8GHz	8	20MB	55W	8.0GT/s	1866
	E5-2623v3	3.0GHz	4	10MB	105W	8.0GT/s	1866
	E5-2620v3	2.4GHz	6	15MB	85W	8.0GT/s	1866
	E5-2609v3	1.9GHz	6	15MB	85W	6.4GT/s	1600
	E5-2603v3	1.6GHz	6	15MB	85W	6.4GT/s	1600

#### Chipset

One of the following depending on Model

Intel® C610 Series Chipset  
Intel® E5-2600v3 Processor Family

**NOTE:** For more information regarding Intel chipsets, please see the following URL: <http://www.intel.com/products/server/chipsets/>.

#### On System Management Chipset

One of the following depending on Model

HP iLO (Firmware HP iLO4 2.0) 2GB NAND

**NOTE:** For more information, visit: <http://www.hp.com/go/ilo>

#### Memory

One of the following depending on Model

Type

HP SmartMemory

DDR4 Registered (RDIMM) or Load Reduced (LRDIMM)

DIMM Slots Available 8

(8 DIMM slots per processor, 4 channels per processor, 2 DIMMs per channel)

Maximum Capacity (LRDIMM) 256GB

(8 x 32GB LRDIMM @2133MHz)

Maximum Capacity (RDIMM) 128GB

(8 x 16GB RDIMM @2133MHz)

#### Memory Protection

One of the following depending on Model

Advanced ECC

Advanced ECC uses single device data correction to detect and correct single and all multibit error that occurs within a single DRAM chip.

Online spare

Memory online spare mode detects a rank that is degrading and switches operation to the spare rank.

### Standard Features

#### Expansion Slots

Motherboard slots (Standard)	Expansion Slots #	Technology	Bus Width	Connector Width	Bus Number	Form Factor	Notes
	1	PCIe 3.0	x16	x16		Low Profile	CPU 1 slots
	3	PCIe 3.0	x8	x8		Low Profile	CPU 1 slots
	4	PCIe 3.0	x16	x16		Low Profile	CPU 1 slots
	6	PCIe 3.0	x8	x8		Low Profile	CPU 2 slots
	7	PCIe 3.0	x16	x16		Low Profile	CPU 2 slots

**NOTE:** Bus Width data indicates the number of physical electrical lanes running to the connector.

Primary Riser (Optional)	Expansion Slots #	Technology	Bus Width	Connector Width	Bus Number	Form Factor	Notes
	1	PCIe 3.0	x8	x8		Full-height, half-length Slot	CPU 1 slots
	2	PCIe 3.0	X8	x8		Full-height, half-length Slot	CPU 1 slots

Flexible LOM Riser (Optional)	Expansion Slots #	Technology	Bus Width	Connector Width	Bus Number	Form Factor	Notes
	4	PCIe 3.0	x8	x8		Low profile	CPU 1 slots
	5	PCIe 3.0	X8	x8		Flexible LOM	CPU 1 slots

**NOTE:** Flexible LOM riser kit will be available in FYQ1'15.

**NOTE:** This riser is mandatory for installing Flexible LOMs & has to be installed in Primary riser slot.

GPU riser (Optional)	Expansion Slots #	Technology	Bus Width	Connector Width	Bus Number	Form Factor	Notes
	1	PCIe 3.0	x16	x16		Full Height, Full Length Slot	CPU 1 slots

**NOTE:** When populating slots on second riser, a second processor must be installed.

#### Storage Controller

One of the following depending on Model

Entry Models

HP Dynamic Smart Array B140i Controller

**NOTE:** Provides support for up to 10 SATA drives and data transmission speeds up to 6Gb/s and supports RAID 0, 1 & 5.

Base Models

HP H240 FIO Smart Host Bus Adapter

**NOTE:** H240 Provides support for up to 8 SAS/SATA drives, data transmission speeds up to 12Gb/s and supports RAID 0, 1 & 5.

#### Internal Storage Devices

One of the following depending on Model

Optical Drives

Via USB only

Hard Drives

None ship standard

Hard Drive Bays

12 LFF drive bays total without Optical Bay

8 LFF drive bays total without Optical Bay

### Standard Features

#### Maximum Internal Storage

One of the following depending on Model

		CAPACITY	CONFIGURATION
	Hot Plug LFF SAS	72.0TB	12 x 6TB (with 12LFF drive cage)
	Hot Plug LFF SATA	72.0TB	12 x 6TB (with 12LFF drive cage)
	Non-Hot Plug LFF SATA	19.2TB	12 x 1.6TB (with 12LFF drive cage)
	Hot Plug LFF SATA SSD	4.8TB	8 x 600GB (with 8LFF drive cage)

#### Power Supply

One of the following depending on Model

HP 550W FIO Power Supply  
HP 800W/900W Gold AC Power Input Module

HP Entry-Level Power Supplies provide lower-cost options for customers trying to balance their need for enterprise class efficiency and reliability while maintaining lowest possible hardware costs. All Entry-Level power supply options have been designed specifically for HP ProLiant Gen9 Essential Series servers.

The HP 550W FIO Power Supply is the standard, non-redundant AC power supply option for most HP ProLiant Gen9 Essential servers. It features Silver-level (89%) certified power efficiency with a set of features optimized for the Gen9 Essential-series rack and tower servers.

The HP 800W Gold (Redundant)/900W (Non-Redundant) AC Power Input Module with Power Backplane can be configured to support power redundancy in ProLiant servers that offer only a single power supply bay, providing additional protection against power loss. With an 80 Plus Gold power efficiency rating (up to 92%), this power option helps to reduce operating expenses while protecting against trapped power capacity in the data center. Each power backplane option can support up to two (2) hot-plug AC power input modules.

All pre-configured servers ship with a standard 6-foot IEC C-13/C-14 jumper cord (A0K02A). This jumper cord is also included with each standard AC power supply option kit. If a different power cord is required, please check the [ProLiant Power Cables web page](#).

To review the power requirements for your selected system, please use the HP Power Advisor Tool located at <http://www.hp.com/go/hppoweradvisor>.

Power specifications and technical content for all HP Server power supplies can be found at <http://www.hp.com/go/proliant/powersupply>.

#### System Fans

One of the following depending on Model

	Non-redundant	Redundant
1P model	3 fans	5 fans
<b>NOTE:</b> Redundant and non redundant fan counts vary with riser selection. 1P configurations either one of primary and secondary risers need 3 fans in non redundant configuration and		
	Non-redundant	Redundant
2P model	4 fans	6 fans
<b>NOTE:</b> Customers may separately purchase redundant fans with the 765516-B21 option kit. Additional fans (two) are also included in -B21 processor option kits when upgrading from one processor to two processors.		
<b>NOTE:</b> All the riser option kits ship with necessary fan option kits.		

### Standard Features

<b>Interfaces</b>	Video	1 (Vaux Support)
	LOM Network Ports	2 x 1GbE ports
	Micro SD Slot	1 Micro SD
	<b>NOTE:</b> The SD slot is not a hot-pluggable device. Customers should not attempt to plug an SD card into the SD slot while the server is powered.	
USB	Up to 4 USB ports (standard);	
	Front: 1xUSB 2.0 std; (1xUSB2.0 optional upgrade with quick release ears)	
	Rear: 2xUSB 3.0	
	Internal: 1x USB 3.0	
<b>NOTE:</b> 12LFF drive cage models with Quick release latch rack ears supports front USB 2.0.		

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<b>Operating Systems and Virtualization Software Support for ProLiant Servers</b>	<a href="#">Microsoft Windows Server</a>
	<a href="#">Red Hat Enterprise Linux (RHEL)</a>
	<a href="#">SUSE Linux Enterprise Server (SLES)</a>
	<a href="#">Oracle Solaris</a>
	<a href="#">VMware</a>
<b>NOTE:</b> For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: <a href="http://www.hp.com/go/ossupport">http://www.hp.com/go/ossupport</a> and our driver download page <a href="http://www.hp.com/support/DL80Gen9">http://www.hp.com/support/DL80Gen9</a> .	

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<b>Upgradeability</b> One of the following depending on Model	Upgradeable to two processors (24 cores) up to 8 DIMM slots
	<b>NOTE:</b> To take advantage of DIMMs 5-8, a second processor must be installed.
	FlexibleLOM slot for 1Gigabit or 10 Gigabit Ethernet or QDR/FDR InfiniBand networking options
	<b>NOTE:</b> To take advantage of the additional 2 PCI slot upgrade, a second processor must be installed.
Redundant Power Supply	
Redundant Fan	

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<b>Industry Standard Compliance</b>	ACPI 2.0b Compliant
	PCIe 3.0 Compliant
	PXE Support
	WOL Support
	Microsoft® Logo certifications
	USB 3.0 Support
	ASHRAE A3
	<b>NOTE:</b> Supports A3 extended ambience. <b>NOTE:</b> Refer to technical specifications section for more details.

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<b>Graphics</b>	Integrated Matrox G200eH2 video standard
	<ul style="list-style-type: none"><li>• 1280 x 1024 (32 bpp)</li><li>• 1920 x 1200 (16 bpp)</li></ul>

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### Standard Features

#### HP Server UEFI/Legacy ROM

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secured configuration while interacting with your server at boot time. HP ProLiant Gen9 platform defaults to UEFI and can be factory or field configured for Legacy BIOS Boot Mode.

**NOTE:** The UEFI System Utilities function is analogous to the HP ROM-Based Setup Utility (RBSU) of legacy BIOS. For more information, please visit <http://www.hp.com/go/proliantuefi/docs>.

UEFI enables numerous new capabilities specific to HP ProLiant servers such as:

- Secure Boot
- Operating system specific functionality
- Support for > 2.2 TB (using GPT) boot drives
- USB 3.0 Stack
- Embedded UEFI Shell
- Mass Configuration Deployment Tool using HP RESTful API.
- PXE boot support for IPv6 networks
- Boot support for option cards that only support a UEFI option ROM

For more information please visit <http://www.hp.com/go/proliant/uefi>.

**NOTE:** For UEFI Boot Mode, boot environment and OS image installations should be configured properly to support UEFI.

**NOTE:** HP UEFI FIO Setting (758959-B22) can be selected to configure the system in Legacy mode in the factory.

#### Form Factor

One of the following depending on Model

2U Rack form factor

All models ship with Easy Install rails (Cable management arm optional).

8 LFF Drive Bay Version:

3.44 (8.75cm) Height x 17.54" (44.55 cm) Width x 23.9" (60.70 cm) Length

12 LFF Drive Bay Version:

3.44 (8.75cm) Height x 17.54" (44.55 cm) Width x 23.9" (60.70 cm) Length

#### Embedded Management

##### HP Integrated Lights-Out (HP iLO)

Monitor your servers for ongoing management, service alerting, reporting and remote management with HP iLO. Learn more at <http://www.hp.com/go/ilo>.

##### UEFI

Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI). Learn more at <http://www.hp.com/go/ProLiant/uefi>.

##### HP RESTful API

RESTful API is an application programming interface. RESTful Web Service API served by iLO's web server: Learn more at <http://www.hp.com/go/restfulapi>.

##### Intelligent Provisioning

Provision servers by discovering and deploying 1 to few servers with Intelligent Provisioning. Learn more at <http://www.hp.com/go/intelligentprovisioning>.

##### Embedded Remote Support

HP's embedded remote support, when used with Insight Online direct connect or HP Insight Remote Support, allows HP ProLiant servers to transmit hardware events directly to HP or an HP Authorized Partner for automated phone home support. Learn more at <http://www.hp.com/go/insightonline/info>.

### Standard Features

**NOTE:** For more information, visit: <http://www.hp.com/go/ilo> or HP iLO Management Engine technologies whitepaper.

#### Server utilities

<b>HP Smart Update</b>	Optimize firmware and driver updates with HP Smart Update solutions. Learn more at <a href="http://www.hp.com/go/smartupdate">http://www.hp.com/go/smartupdate</a> .
<b>HP Systems Insight Manager (HP SIM)</b>	HP SIM allows you to monitor the health of your HP ProLiant Servers and HP Integrity Servers, and also provides you with basic support for non-HP servers. HP SIM also integrates with HP SUM to provide quick and seamless firmware updates. Learn more at <a href="http://www.hp.com/go/sim">http://www.hp.com/go/sim</a> .
<b>HP OneView Standard</b>	HP OneView Standard can inventory, monitor, alert, and report on your G6, G7, Gen8, and Gen9 servers, while using the HP OneView user interface. Annual support is optionally available. Learn more at <a href="http://www.hp.com/go/oneview">http://www.hp.com/go/oneview</a> .
<b>Scripting Tool Kit and Windows PowerShell</b>	Provision 1 to many servers using your own scripts to discover and deploy them with HP Scripting Tool Kit for Windows and Linux or HP Scripting Tools for Windows PowerShell. Learn more at <a href="http://www.hp.com/go/ProLiantSTK">http://www.hp.com/go/ProLiantSTK</a> or <a href="http://www.hp.com/go/powershell">http://www.hp.com/go/powershell</a> .
<b>HP RESTful Interface Tool</b>	HP RESTful Interface tool is a scripting tool to provision servers using RESTful API Interface to discover and deploy servers at scale. Learn more at <a href="http://www.hp.com/go/restfulapi">http://www.hp.com/go/restfulapi</a> .
<b>HP iLO Mobile Application</b>	Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: <a href="http://www.hp.com/go/ilo/mobileapp">http://www.hp.com/go/ilo/mobileapp</a> .
<b>HP Insight Online</b>	HP Insight Online, available at no additional cost as part of your HP warranty, Care Pack or contractual support agreement with HP, is a personalized dashboard for simplified tracking of IT operations and support information from anywhere, anytime. Learn more at <a href="http://www.hp.com/go/insightonline/info">http://www.hp.com/go/insightonline/info</a> .

#### Security

Power-on password  
Serial interface control  
Administrator's password  
TPM 1.2  
UEFI

### Standard Features

#### Warranty

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

**NOTE:** Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>.

### Optional Features

#### Embedded Management

##### iLO Essentials

HP iLO Essentials is the preferred license for small and medium business that offers full remote server management capabilities for small and medium business via the Integrated Remote Console (IRC), virtual media, and e-mail based alerts. Learn more about HP iLO Essentials at <http://www.hp.com/go/iLO/essentials>.

##### iLO Scale-Out

HP iLO Scale-Out is the preferred license built for web hosting, cloud service providers, and high performance computing data centers, managing massive scale out environments. This license offers sophisticated scripting tools that provides remote access through Text Console via SSH, Dynamic power capping, Email-based Alerting and proactive notifications. For more information, visit <http://www.hp.com/go/iLO/scale-out>.

##### iLO Advanced

HP iLO Advanced licenses offer smart remote functionality without compromise, for all HP ProLiant servers. The license includes the full integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality. Learn more about HP iLO Advanced at <http://www.hp.com/go/iloadvanced>.

#### Server Management

##### HP Insight Control

HP Insight Control, lets you deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. For more information, see <http://www.hp.com/go/insightcontrol>.

##### HP OneView Advanced

HP OneView Advanced is converged management that eliminates infrastructure complexity with automation simplicity. This modern architecture is designed to accelerate your IT operations across servers, storage, and network resources using software-defined approaches and automation, see <http://www.hp.com/go/oneview>.

#### Rack and Power Infrastructure

HP Rack and Power Infrastructure products and services create highly efficient and intelligent solutions for existing or new IT data centers. HP Rack and Power infrastructure solutions - rack infrastructure, power protection and management, performance optimized data centers (PODs) - are the foundation you are looking for to help secure your long-term IT success. These products are designed to help you react to changes in the industry. They deliver efficient, easy-to-use capabilities to manage, monitor, deploy and provision infrastructure from entry to enterprise. As an industry leader, HP is uniquely positioned to address the key concerns of power, cooling, cable management and system access.

Learn more at [HP Rack and Power Infrastructure](#).

### Optional Features

#### High Performance Clusters

HP Cluster Platforms are specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and SUSE Linux Enterprise Server, as well as Microsoft Windows HPC Server. A Cluster Platform Configurator simplifies ordering. <http://www.hp.com/go/clusters>.

#### HPC Interconnects

**NOTE:** High Performance Computing (HPC) interconnect technologies are available for this server under the HP Cluster Platform product portfolio. These high-speed interconnects are fully supported by HP when they are part of these configure to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. Please visit the following URL to configure HPC Clusters with InfiniBand Interconnects: <http://www.hp.com/techservers/clusters/ucp/index.html>.

#### Storage Software

Whether you need to solve a specific data protection, archiving, or storage command and control challenge, or deliver on strategic consolidation, compliance, or continuity initiatives, look no further than HP storage software. Our storage software helps you reduce costs, simplify storage infrastructure, protect vital assets and respond faster to business opportunities. Storage software that gets the job done:

- **Data Protection and Recovery Software**  
Whether you're a large enterprise or a smaller business, HP data protection and recovery software will cost-effectively protect you against disaster and ensure business continuity.
- **Data Archive and Migration Software**  
HP's storage software enables you to comply with data retention and retrieval requirements, improve application performance, and reduce costs by efficiently migrating infrequently accessed or less valuable data to lower cost storage.
- **Storage Resource Management Software (SRM)**  
HP's storage resource management software reduces operational costs and provides the command and control foundation you need to efficiently manage and visualize your physical and virtual environments.
- **Data Replication Software**  
HP offers array-based and host-based replication software for use in disaster recovery, testing, application development and reporting.
- **Storage Device Management Software**  
Maximize your investment in HP storage and networking with software that enables hardware-specific configuration, performance tuning and connectivity management.
- **HP StoreVirtual VSA**  
With HP StoreVirtual VSA you can use the power of virtualization to create a virtual array within your host server. Manage it as a single pool of shared storage capacity, and scale it to match your evolving needs. HP ProLiant Gen9 servers include a 3-year limited license for HP StoreVirtual VSA software with 1TB of capacity at no extra cost. Simply select to install HP StoreVirtual VSA software during server setup within Intelligent Provisioning. More information, instructional videos, and free console management software are available at <http://www.hp.com/go/vsa1TB>.

**NOTE:** For more information about Storage Software including QuickSpecs, please see: <http://www.hp.com/go/storage/software>.

#### One Config Simple (SCE)

SCE is a guided self service tool to help sales and non technical people provide customers with initial configurations in 3 to 5 minutes. You may then send the configuration on for configuration help, or use in your existing ordering processes. If you require "custom" rack configuration or configuration for products not available in SCE, please contact HP's Customer Business Center or an Authorized Partner for assistance. <http://www.hp.com/products/configurator>

### Service and Support

#### Service and Support **HP Technology Services for Industry Standard Servers**

HP Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to HP to help prevent problems and solve issues faster. Our support technology lets you to tap into the knowledge of millions of devices and thousands of experts to stay informed and in control, anywhere, any time.

#### **Protect your business beyond warranty with HP Care Pack Services**

HP Care Pack Services enable you to order the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement for the term you select.

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#### Optimized Care

#### **Supports maintaining servers at optimum performance availability**

##### **HP Proactive Care with 24x7 coverage, three year Care Pack Service**

HP Proactive Care helps prevent problems and stabilize IT by utilizing secure, real-time, predictive analytics and proactive consultations when your products are connected to HP. This Care Pack Service combines three years' proactive reporting and advice with our 24x7 coverage and enhanced escalation management, four hour hardware response time and two hour call back for software questions on leading industry standard software running on your HP ProLiant server.

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855ENW.pdf>

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#### Standard Care Package Supports maintaining high level of server availability

##### **Foundation Care 24x7, three-year Care Pack Service**

HP Foundation Care 24x7 connects you to HP 24 hours a day, seven days a week for assistance on resolving issues. Hardware onsite response within four hours if needed; collaborative software included in this Care Pack service provides troubleshooting assistance on industry leading software running on your HP server. Simplify your support experience and make HP your first call for hardware or software questions.

<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>

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#### Basic Care

##### **Foundation Care NBD, three-year Care Pack Service**

HP Foundation Care Next Business Day connects you to HP during business hours for assistance on resolving issues - features next business day hardware onsite response if needed and software call back within two hours. Collaborative software support is included and provides troubleshooting assistance on industry leading software running on your server. Simplify your support experience and make HP your first call for hardware or software questions.

<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>

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#### Related Services

##### **HP ProLiant Server Hardware Installation**

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf>

##### **Factory Express for Servers and storage**

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. For more information on Factory Express services for your specific server model please contact your sales representative or go to:

<http://www.hp.com/go/factory-express>.

##### **Data Privacy Services**

Protect your data through better media management. HP Data privacy services help manage and

### Service and Support

protect sensitive data to reduce the risk of unauthorized access to private information and help meet compliance requirements. Our retention services allow you to keep drives and other devices upon failure, our removal services provide convenient data sanitization and our recovery services allow you to safely retire IT assets and capture any remaining value from the hardware.

<http://www.hp.com/services/dataprivacy>

Additional HP Care Pack services can be found at: <http://www.hp.com/go/cpc>

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**Get connected to HP to improve your support experience** Prevent problems with innovative, automated monitoring tools and proactive services. Combining Proactive Care Services with our remote support technology such as Insight Online provides you with expert advice and personalized, cloud-based automated IT support, helping to prevent unplanned down time and solve problems quickly. For more information, visit:

<http://www.hp.com/go/proactiveinsightexperience>

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### HP Support Center

Personalized online support portal with access to information, tools and experts to support HP business products. Submit support cases online, chat with HP experts, access support resources or collaborate with peers. Learn more <http://www.hp.com/go/hpsc>

HP's Support Center Mobile App\*\* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime. HP Insight Remote Support and HP Support Center are available at no additional cost with a HP warranty, HP Care Pack or HP contractual support agreement.

\*\* [HP Support Center Mobile App is subject to local availability](#)

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### Parts and Materials

HP will provide HP-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services. The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HP due to malfunction.

### Pre-configured Models

For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

1. Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.
2. HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.
3. If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.
4. Not all models are available in all regions. Check with your local country HP offices for availability.

**NOTE:** All Pre-configured Models come populated with some hard drive blanks installed. Should the customer need additional hard drive blanks, they can order more using P/N 666986-B21: HP LFF Hard Drive Blank Kit.

**NOTE:** All pre-configured servers ship with a standard 6-foot IEC C-13/C-14 jumper cord (A0K02A). This jumper cord is also included with each standard AC power supply option kit. If a different power cord is required, please check the [ProLiant Power Cables](#) web page.

**CAUTION:** HP recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

	Entry Models	Base Models
[SKU Number]	778640-B21	778641-B21
Model Name	HP ProLiant DL80 Gen9 E5-2603v3 4GB-R B140i 4LFF 550W PS Entry Server	HP ProLiant DL80 Gen9 E5-2609v3 8GB-R H240 8LFF 550W PS Entry Server
Processor	Intel® Xeon® E5-2603v3	Intel® Xeon® E5-2609v3
Number of Processors	One	
Memory	4GB (1x4GB Registered DIMMs, 2133 MHz) <b>NOTE:</b> Due to processor limitation, these DDR4 DIMMs will operate at 1600 MHz in this model	8GB (1x8GB Registered DIMMs, 2133 MHz) <b>NOTE:</b> Due to processor limitation, these DDR4 DIMMs will operate at 1600 MHz in this model.
Network Controller	HP Embedded Dual Port 361i Adapter Network Interface	
Storage Controller	HP Dynamic Smart Array B140i	HP H240 FIO Smart Host Bus Adapter
Hard Drive	None ship standard	
Internal Storage	4 LFF HDD Bays (Non Hot Plug)	8 LFF HDD Bays
Optical Drive Bay	Optional via HP Mobile USB DVDRW Drive (701498-B21)	Not Available
Optical Drive		Optional via HP Mobile USB DVDRW Drive (701498-B21)
PCI-Express Slots	5 PCIe 3.0 slots (without risers)	
Power Supply	(1) HP 550W FIO Power Supply	
Fans	2 hot swap fans, non redundant	4 hot swap fans, redundant
Management	iLO Management (standard), Intelligent Provisioning (standard), iLO Essentials (optional)	
Form Factor	Rack (2U), HP Easy Install Rails	

Country Code Key      xx=B21                      Worldwide

**NOTE:** The -B21 WW SKU is to be ordered in all countries other than Japan or PRC.

xx=291                      Japan

xx=AA1                      PRC

### Configuration Information - Factory Integrated Models

This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.

1. Factory Integrated Models must start with a CTO Server.
2. FIO indicates that this option is only available as a factory installable option.
3. All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.
4. Some options may not be integrated at the factory. Contact your local sales representative for additional information.

### Step 1: Base Configuration (choose one of the following configurable models)

[Chassis]	HP ProLiant DL80 Gen9 Non-hot Plug 4LFF Configure-to-order Server	HP ProLiant DL80 Gen9 8LFF Configure-to-order Server	HP ProLiant DL80 Gen9 12LFF Configure-to-order Server
SKU Number	778686-B21	778685-B21	787217-B21
Processor	2 (optional) x HP Smart Socket Guides		
DIMMSlots	8 DIMM slots for RDIMM, LRDIMM DDR4 Memory		
Storage Controller	HP Dynamic Smart Array B140i		
PCIe	5 Low Profile PCIe 3.0 slots		
Drive Cage	4LFF Non Hot Plug	8LFF Hot Plug	12LFF Hot Plug
Network Controller	HP Embedded Dual Port 361i Adapter Network Interface		
Fans	2 hot swap fans, non redundant		
Management	iLO Management (standard), Intelligent Provisioning (standard), iLO Essentials (optional)		
USB	1 front, 1 internal, 2 rear		

### Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

#### HP Processors

Select one or two processors from Core options-Processor section below,

- If one processor is desired, select one xxxxxx-L21
- If two processors are desired, select one xxxxxx-L21 and one xxxxxx-B21.
- Up to 2 processors supported. Mixing different processor models is not supported.
- DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

For the Intel® C600 Chipset E5-2600 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2600x v#, 2 = number of CPUs in a Node, 6 is socket/segment designation, 00 = Processor SKU, x = L for low power SKUs and v# (not yet designated) = version number.

#### HP Memory

Select one or more memory from Core options-Memory section below,

- LRDIMM, RDIMM are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen9 servers support LRDIMM and RDIMM.
- HP memory from previous generation servers are not qualified or warranted with this HP ProLiant Server. HP SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen9.
- If only one processor is installed, only half of the total DIMM slots are available. When populating with two processors all DIMM slots are available.
- Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: <http://www.hp.com/go/proliant-energy-efficient>.
- Depending on the memory configuration and processor model, the memory speed may run

### Configuration Information - Factory Integrated Models

at 2133MHz, 1866MHz, 1600MHz or 1333MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: <http://www.hp.com/go/ddr4config>.

**HP Power Supplies** Select one or more power supplies from Core Options-Power Supplies section below:

- Prior to selecting a power supply option, it is highly recommended that you review your server configuration in the HP Power Advisor tool to determine the right size power supply for your server configuration. The HP Power Advisor is located at: <http://www.hp.com/go/hppoweradvisor>.
- Mixing of power supplies in the same server is not supported. All power supplies must be of the same input voltage, output rating, and efficiency rating. If non-matching power supplies are installed, you may receive an error message and/or experience operational issues with your server.

### Step 3: Choose Additional Factory Integratable Options

**HP Unique Options** Select one or more Unique options from Core options section below.

- This section may contain FIO options, please see the Unique options section below.
- FIO indicates that this option is only available as a factory installable option.

**HP Drives** Select one or more drives from Core options-HP Drives section below:

- The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.
- Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.
- The HP ProLiant Gen9 Smart Storage solutions are equipped with re-designed Small Form Factor (SFF 2.5 in) and Large Form Factor (LFF 3.5 in) hot plug carriers for HP Qualified Hard Drives and Solid State Drives. These new carriers provide status and activity indicators as well as caution indicators for "Do Not Remove".

**HP Flexible LOM** Select a FlexibleLOM from Core options-Networking section below,

- Only one FlexibleLOM can be added to the server. These options are upgradeable and can be changed from the original configuration after the server is shipped.
- For 10Gb adapters, a minimum of two Gigabytes (2 GB) of server memory is required per each adapter.
- Please see the QuickSpecs for Technical Specifications and additional information: <http://www.hp.com/go/ProLiantNICs>.

**HP Networking** Select a standup NIC adapter from Core options-Networking section below,

- Please see the QuickSpecs for Technical Specifications and additional information: <http://www.hp.com/go/ProLiantNICs>.
- These options are upgradeable and can be changed from the original configuration after the server is shipped.
- For 10Gb adapters, a minimum of two Gigabytes (2 GB) of server memory is required per each adapter.

**HP Graphics Options** Select one or more graphics adapter from Additional options section below.

- Please see the HP Power Advisor for estimated power consumption of your individual system configuration prior to installing GPUs. The HP Power Advisor is located at:



### Configuration Information - Factory Integrated Models

<http://www.hp.com/go/hppoweradvisor>.

- This section may contain FIO options, please see HP Computation & Graphics Accelerators section below.

**HP Cooling Options** Select one or more Fan Kits from Core options section below.

- This section may contain FIO options, please see HP Cooling Options section below.
- FIO indicates that this option is only available as a factory installable option.

**HP Storage Controllers** Select one or more Storage options from Additional options section below.

- The embedded B140i controller will operate in UEFI only mode. For legacy support an additional controller will be needed, and for CTO orders please also select the Legacy mode settings part, 758959-B22
- This section may contain FIO options, please see HP Storage Controllers section below.
- FIO indicates that this option is only available as a factory installable option.

**HP I/O Expansion Options** Select one or more Riser Kit options from Core options section below.

- To take advantage of the additional PCI slot upgrade, the second processor must be installed.
- This section may contain FIO options, please see HP I/O Expansion Options section below.
- FIO indicates that this option is only available as a factory installable option.

**HP Rail Kits** Select one type of rail kit from Additional options section below.

- Please take a moment to review the installation documentation that comes with the server to help you with the installation of your Gen9 server.
- To assist in the installation of the server into the rack, an optional installation tool is available by contacting your local services representative (p/n 695539-001).
- See HP Rack Options in Additional Options section of this QuickSpecs for more rack kit choices.

**CAUTION:** HP recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

### Core Options

**NOTE:** Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

<b>HP Unique Options</b>	HP DL80 Gen9 8LFF Non-hot Plug Enablement Kit <b>NOTE:</b> Required to upgrade from 4LFF NHP to 8LFF NHP models.	788355-B21
	HP DL80 Gen9 Full Height Half Length Riser Kit <b>NOTE:</b> Includes two FLFH PCIe 3.0 slots and one fan.	765515-B21
	HP DL80 Gen9 GPU Enablement Kit <b>NOTE:</b> Includes 1 FHFL slot, one fan and power cable required to enable GPU support. Either one of FHHL or FlexibleLOM riser or GPU riser can be selected.	765518-B21
	HP DL80 Gen9 FlexibleLOM Riser Kit <b>NOTE:</b> Includes one FlexibleLOM slot, one Low Profile slot and one fan.	765514-B21
	HP AHCI-Enable FIO Setting <b>NOTE:</b> This needs to be selected when Advanced Host Controller Interface mode is required on B140i controller.	801845-B21

### HP Processors

#### Entry Processors - E5-2600v3 series Processors

HP DL80 Gen9 Intel® Xeon® E5-2603v3 (1.6GHz/6-core/15MB/85W) Processor Kit	765521-B21
HP DL80 Gen9 Intel® Xeon® E5-2603v3 (1.6GHz/6-core/15MB/85W) FIO Processor Kit	765521-L21
HP DL80 Gen9 Intel® Xeon® E5-2609v3 (1.9GHz/6-core/15MB/85W) Processor Kit	765523-B21
HP DL80 Gen9 Intel® Xeon® E5-2609v3 (1.9GHz/6-core/15MB/85W) FIO Processor Kit	765523-L21

#### Base Processors - E5-2600v3 series Processors

HP DL80 Gen9 Intel® Xeon® E5-2620v3 (2.4GHz/6-core/15MB/85W) Processor Kit	765525-B21
HP DL80 Gen9 Intel® Xeon® E5-2620v3 (2.4GHz/6-core/15MB/85W) FIO Processor Kit	765525-L21
HP DL80 Gen9 Intel® Xeon® E5-2630v3 (2.4GHz/8-core/20MB/85W) Processor Kit	765526-B21
HP DL80 Gen9 Intel® Xeon® E5-2630v3 (2.4GHz/8-core/20MB/85W) FIO Processor Kit	765526-L21
HP DL80 Gen9 Intel Xeon E5-2630Lv3 (1.8GHz/8-core/20MB/55W) Processor Kit	765530-B21
HP DL80 Gen9 Intel Xeon E5-2630Lv3 (1.8GHz/8-core/20MB/55W) FIO Processor Kit	765530-L21
HP DL80 Gen9 Intel® Xeon® E5-2640v3 (2.6GHz/8-core/20MB/90W) Processor Kit	765531-B21
HP DL80 Gen9 Intel® Xeon® E5-2640v3 (2.6GHz/8-core/20MB/90W) FIO Processor Kit	765531-L21
HP DL80 Gen9 Intel® Xeon® E5-2623v3 (3GHz/4-core/10MB/105W) Processor Kit	780100-B21
HP DL80 Gen9 Intel® Xeon® E5-2623v3 (3GHz/4-core/10MB/105W) FIO Processor Kit	780100-L21

#### Performance Processors - E5-2600v3 series Processors

HP DL80 Gen9 Intel® Xeon® E5-2650v3 (2.3GHz/10-core/25MB/105W) Processor Kit	765528-B21
HP DL80 Gen9 Intel® Xeon® E5-2650v3 (2.3GHz/10-core/25MB/105W) FIO Processor Kit	765528-L21

### Core Options

HP DL80 Gen9 Intel® Xeon® E5-2660v3 (2.6GHz/10-core/20MB/90W) ProcessorKit	765529-B21
HP DL80 Gen9 Intel® Xeon® E5-2660v3 (2.6GHz/10-core/20MB/90W) FIO Processor Kit	765529-L21
HP DL80 Gen9 Intel® Xeon® E5-2650Lv3 (1.8GHz/12-core/30MB/65W) Processor Kit	765532-B21
HP DL80 Gen9 Intel® Xeon® E5-2650Lv3 (1.8GHz/12-core/30MB/65W) FIO Processor Kit	765532-L21

### HP Memory

#### Registered DIMMs (RDIMMs) for E5-2600v3 Series

HP 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726717-B21
HP 8GB (1x8GB) Single Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726718-B21
HP 8GB (1x8GB) Dual Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit	759934-B21
HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726719-B21
<b>Load Reduced DIMMs (LRDIMMs) for E5-2600v3 Series</b>	
HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726720-B21
HP 32GB (1x32GB) Quad Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726722-B21

### HP Optical Drives

HP Mobile USB Non Leaded System DVD RW Drive	701498-B21
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### HP Hard Drives

#### SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

HP 600GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	765424-B21
HP 450GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	737394-B21
HP 300GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	737261-B21

#### SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives

HP 6TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	761477-B21
HP 4TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	695510-B21
HP 3TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652766-B21
HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652757-B21
HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652753-B21

#### SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives

HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	753874-B21
HP 4TB 6G SATA 7.2k rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	693687-B21
HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	628061-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658079-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	657750-B21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658071-B21

#### SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives



### Core Options

HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	628065-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659339-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659337-B21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659341-B21
<b>12G SAS Hot Plug LFF (3.5-inch) Enterprise Value Solid State Drives</b>	
HP 800GB 12G SAS Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	762270-B21
HP 1.6TB 12G SAS Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	762272-B21
<b>6G SATA Hot Plug LFF (3.5-inch) Enterprise Mainstream Solid State Drives</b>	
HP 800GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691860-B21
HP 400GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691856-B21
HP 200GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691854-B21
HP 100GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691852-B21
<b>6G SATA Hot Plug LFF (3.5-inch) Enterprise Value Solid State Drives</b>	
HP 800GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	718189-B21
HP 600GB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive	739900-B21
HP 480GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	718183-B21
HP 300GB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive	739890-B21
HP 240GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	718177-B21
HP 960GB 6G SATA Light Endurance LFF 3.5-in SC Converter ENT Light 3yr Wty G1 Solid State Drive	756604-B21
HP 120GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty G1 Solid State Drive	756624-B21
HP 240GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty G1 Solid State Drive	756639-B21
HP 480GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty G1 Solid State Drive	756660-B21
HP 1.6TB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive	757342-B21
<b>6G SATA Hot Plug LFF (3.5-inch) Enterprise Boot Solid State Drives</b>	
HP 120GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Boot 3yr Wty Solid State Drive	718171-B21
HP 80GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Boot 3yr Wty Solid State Drive	734362-B21
<b>Hard Drive Blank Kits</b>	
HP Large Form Factor Hard Drive Blank Kit	666986-B21
<b>Hard Drive Kits</b>	

### Core Options

HP DL80 Gen9 8LFF Non-hot Plug Enablement Kit 788355-B21  
**NOTE:** Required to move from 4LFF NHP model to 8 LFF NHP model.

#### HP Networking

##### 1 Gigabit Ethernet adapters

HP Ethernet 1Gb 4-port 331T Adapter 647594-B21  
 HP Ethernet 1Gb 2-port 332T Adapter 615732-B21  
 HP Ethernet 1Gb 2-port 361T Adapter 652497-B21

##### 10 Gigabit Ethernet adapters

HP Ethernet 10Gb 2-port 530SFP Adapter 652503-B21  
 HP Ethernet 10Gb 2-port 530T Adapter 656596-B21  
 HP Ethernet 10Gb 2-port 561T Adapter 716591-B21  
 HP Ethernet 10Gb 2-port 560SFP+ Adapter 665249-B21

##### FlexibleLOM Adapters

HP Ethernet 1Gb 4-port 331FLR Adapter 629135-B22  
 HP Ethernet 1Gb 4-port 366FLR Adapter 665240-B21  
 HP Ethernet 10Gb 2-port 560FLR-SFP+ Adapter 665243-B21  
 HP Ethernet 10Gb 2-port 561FLR-T Adapter 700699-B21  
 HP FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter 700751-B21  
 HP FlexFabric 10Gb 2-port 533FLR-T Adapter 700759-B21

#### HP InfiniBand

HP InfiniBand FDR 2-port 545QSFP Adapter 702211-B21  
 HP InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+QSFP Adapter 764284-B21

#### HP I/O Expansion Options

HP DL80 Gen9 FlexibleLOM Riser Kit 765514-B21  
**NOTE:** Includes one FlexibleLOM slot, one Low Profile slot and one fan.  
 HP DL80 Gen9 Full Height Half Length Riser Kit 765515-B21  
**NOTE:** Includes two FLFH PCIe 3.0 slots and one fan.  
 HP DL80 Gen9 GPU Enablement Kit 765518-B21  
**NOTE:** Includes 1 FHFL slot, one fan and power cable required to enable GPU support. Either one of FHHL or FlexibleLOM riser or GPU riser can be selected.

#### HP Power Supplies

##### HP Entry-Level Power Supplies

HP 550W FIO Power Supply Kit 730941-B21  
 HP 800W Gold (Redundant)/900W (Non-Redundant) AC Power Input Module 744689-B21  
 HP Server Redundant Power Supply Backplane Kit 745813-B21  
**NOTE:** Required to be bought when 900W/800W power supply (P/N: 744689-B21) is selected.

### Core Options

<b>HP Computation and Graphics Accelerators</b>	HP NVIDIA Quadro K2200 Graphics Accelerator	J0G89A
	<b>NOTE:</b> GPU enablement kit (P/N: 765518-B21) is required with this option.	
	HP NVIDIA Quadro K4200 Graphics Accelerator	J0G90A
	<b>NOTE:</b> GPU enablement kit (P/N: 765518-B21) is required with this option.	
	<b>NOTE:</b> 1 GPU supported per Server, attached to the Primary CPU.	
	<b>NOTE:</b> Only the above listed Graphics cards are HP standard supported options in this server.	
	<b>NOTE:</b> The NVIDIA Quadro modules are supported only on 64-bit versions of Linux and Windows operating systems as well as on Virtual Machine client operating systems. The supported bare metal operating systems are RHEL6, SLES 11 and Windows Server 2012 R2.	
	<b>NOTE:</b> Please see the HP Power Advisor for estimated power consumption of your individual system configuration prior to installing GPUs. The HP Power Advisor is located at: <a href="http://www.hp.com/go/hppoweradvisor">http://www.hp.com/go/hppoweradvisor</a> .	

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<b>HP Cooling Options</b>	HP DL80 Gen9 Redundant Fan Kit	765516-B21
	<b>NOTE:</b> Includes two fans and is required to move from non redundant to redundant configurations.	

### Additional Options

**NOTE:** Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

<b>Embedded Management</b>	<b>HP iLO Advanced</b>	
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21
	HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates	BD505A
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates E-LTU	E6U59ABE
	HP iLO Advanced including 3yr 24x7 Technical Support and Updates E-LTU	E6U64ABE
	<b>HP iLO Essentials</b>	
	HP Integrated Lights-Out Essentials including 3yr 24x7 Tech Support and Updates Single Svr License	BD774A
	HP Integrated Lights-Out Essentials including 1yr 24x7 Tech Support and Updates Single Svr License	BD775A
	HP Integrated Lights-Out Essentials including 3yr 24x7 Technical Support and Updates E-LTU	E6U61ABE
	HP Integrated Lights-Out Essentials including 1yr 24x7 Technical Support and Updates E-LTU	E6U62ABE
	<b>HP iLO Scale-out</b>	
	HP Integrated Lights-Out Scale-Out 3yr 24x7 Tech Support and Updates Flex Quantity License	BD776A
	HP Integrated Lights-Out Scale-Out including 3yr 24x7 Tech Support and Updates Flex Qty E-LTU	BD776AAE
	HP Integrated Lights-Out Scale-Out including 3yr 24x7 Tech Support and Updates Tracking License	BD777A
HP Integrated Lights-Out Scale-Out 1yr 24x7 Tech Support and Updates Flex Quantity License	BD778A	
HP Integrated Lights-Out Scale-Out including 1yr 24x7 Tech Support and Updates Flex Qty E-LTU	BD778AAE	
HP Integrated Lights-Out Scale-Out including 1yr 24x7 Tech Support and Updates Tracking License	BD779A	

<b>HP Converged Infrastructure Management Software</b>	<b>HP OneView Advanced (with HP iLO Advanced)</b>	
	HP OneView incl 3yr 24x7 Supp Phys 1 Svr Lic	E5Y34A
	HP OneView incl 3yr 24x7 Supp Flex Qty E-LTU	E5Y35AAE
	HP OneView for ProLiant DL Server incl 3yr 24x7 Supp FIO Bundle Physical 1 Svr Lic	E5Y43A
	HP OneView incl 3yr 24x7 Supp Bundle 1 Svr E-LTU	E5Y43AAE
	<b>HP OneView Advanced (without HP iLO Advanced)</b>	
	HP OneView w/o iLO Adv incl 3yr 24x7 Supp Phys 1 Svr Lic	E5Y38A
	HP OneView w/o iLO Adv inc 3yr 24x7 Supp Flex Qty E-LTU	E5Y39AAE
	HP OneView Media Kit Phys No Lic	E5Y37A

**NOTE:** Full licenses of HP OneView Advanced also provide the right-to-use HP Insight Control without additional charge.

**NOTE:** Server provisioning (via 'HP Insight Control server provisioning') is licensed as part of HP OneView Advanced and provides multi-server OS and driver provisioning. Media kit #BD883A can be ordered for a physical copy of this software (USB flash drive).

**NOTE:** Licenses ship without media. The HP OneView Media Kit can be ordered separately, or can be downloaded at: <http://www.hp.com/go/oneview>

### Additional Options

**NOTE:** Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.

#### HP Storage Controllers SAS Controllers

##### HP Smart Array Controllers

HP Smart Array P440/4GB FBWC 12Gb 1-port Int SAS Controller	726821-B21
HP Smart Array P840/4GB FBWC 12Gb 2-ports Int SAS Controller	726897-B21
HP Smart Array P441/4GB FBWC 12Gb 2-ports Ext SAS Controller	726825-B21
HP Smart Array P440/4GB FBWC 12Gb 1-port Int FIO SAS Controller	726825-B21
HP Smart Array P840/4GB FBWC 12Gb 2-ports Int FIO SAS Controller	761874-B21

##### HP Smart Host Bus Adapters

HP H240 12Gb 1-port Int Smart Host Bus Adapter	726907-B21
HP H240 12Gb 1-port Int FIO Smart Host Bus Adapter	761873-B21
HP H241 12Gb 2-ports Ext Smart Host Bus Adapter	726911-B21

##### HP Cable Options

HP DL60/80/120 Gen9 4LFF Cable FIO Kit	777331-B21
HP DL80 Gen9 LFF Smart Array P440/P840 SAS Cable Kit	779619-B21

**NOTE:** One cable kit must be selected with P440 controller.

**NOTE:** Two of these cable kits must be selected with P840 controller.

HP DL80 Gen9 LFF Smart Array H240 SAS Cable Kit	779622-B21
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**NOTE:** Two cable Kits must be selected with H240

**NOTE:** One of the above cables is required to be selected depending on the combination of chassis and storage controller. Cable option kit descriptions include the right chassis and storage controllers names.

**NOTE:** FIO indicates that this option is only available as a factory installable option. Please select FIO option if you want the option to be factory installed.

**NOTE:** NHP server chassis (Mod-x) includes SATA cables required to connect drives to embedded B140i SATA controller.

##### Optional Upgrades

HP 96W Smart Storage Battery with 145mm Cable for DL/ML/SL Servers	727258-B21
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**NOTE:** This option is mandatorily required with HP Smart Array controllers. One server can accommodate only 1 Smart Storage Battery that would suffice the requirement of all HP Smart Array controllers.

### Additional Options

#### HP Tape Backup

**NOTE:**For the complete range of tape drives, autoloaders, libraries and media see: <http://www.hp.com/go/tape>. For hardware and software compatibility of HP tape backup products see: <http://www.hp.com/storage/SPOCK> and <http://www.hp.com/go/ebs>.

**NOTE:** For Internal drives to be connected to DL servers please make sure that you order rack mount kit as well.

#### Tape Drives

#### Tape Libraries

HP MSL2024 0-Drive Tape Library	AK379A
HP MSL4048 0-Drive Tape Library	AK381A

#### SAS Rack-Mount Tape Solutions

HP StoreEver 1U SAS Rack-mount Kit	AE459B
HP StoreEver LTO-4 Ultrium 1760 SAS (1) in 1U Rack-mount Kit	EH946C
HP StoreEver LTO-5 Ultrium 3280 SAS Tape Drive in 3U Rack-mount	EJ013B
HP StoreEver LTO-5 Ultrium 3000 SAS Tape Drive in 1U Rack-mount	EJ014B
HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit	C0L99A
HP StoreEver 1/8 G2 LTO-6 Ultrium 6250 FC Tape Autoloader	C0H19A

#### HP StoreEver MSL6480

HP StoreEver MSL6480 Scalable Base Module	QU625A
HP StoreEver MSL6480 Scaleable Expansion Module	QU626A
HP MSL Library Extender Kit	AQ746A

#### HP Disk Storage Systems

#### Disk Enclosures

HP D6000 Dual I/O Module Disk Enclosure	QQ695A
HP D6000 w/35 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 140TB Bundle	E7W30A
HP D6000 w/70 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 280TB Bundle	E7W31A
HP D6000 w/70 3TB 6G SAS 7.2K LFF Dual port MDL HDD 210TB Bundle	QQ700A
HP D6000 w/70 2TB 6G SAS 7.2K LFF Dual port MDL HDD 140TB Bundle	QQ698A
HP D6000 w/35 3TB 6G SAS 7.2K LFF Dual port MDL HDD 105TB Bundle	QQ699A
HP D6000 w/35 2TB 6G SAS 7.2K LFF Dual port MDL HDD 70TB Bundle	QQ697A

### Additional Options

#### HP Data Center Racks **HP 11000 G2 Series Racks**

HP 11648 1075mm Pallet Universal Rack	H6J87A
HP 11648 1075mm Shock Universal Rack	H6J88A
HP 11642 1075mm Pallet Universal Rack	H6J65A
HP 11642 1075mm Shock Universal Rack	H6J66A
HP 11642 1200mm Pallet Universal Rack	H6J67A
HP 11642 1200mm Shock Universal Rack	H6J68A
HP 11636 1075mm Pallet Universal Rack	H6J77A
HP 11636 1075mm Shock Universal Rack	H6J78A
HP 11622 G2 1075mm Pallet Universal Rack	H6J83A
HP 11622 G2 1075mm Shock Universal Rack	H6J84A
HP 11614 1075mm Shock Universal Rack	H6J82A

**NOTE:** Please see the [HP 11000 G2 Series Racks QuickSpec](#) for information on additional racks options and rack specifications

#### **HP Intelligent Series Racks**

HP 647 1075mm Pallet Intelligent Series Rack	BW911A
HP 647 1075mm Shock Intelligent Series Rack	BW912A
HP 647 1200mm Pallet Intelligent Series Rack	BW913A
HP 647 1200mm Shock Intelligent Series Rack	BW914A
HP 642 1075mm Pallet Intelligent Series Rack	BW903A
HP 642 1075mm Shock Intelligent Series Rack	BW904A
HP 642 1200mm Pallet Intelligent Series Rack	BW907A
HP 642 1200mm Shock Intelligent Series Rack	BW908A
HP 636 1075mm Pallet Intelligent Series Rack	BW895A
HP 636 1075mm Shock Intelligent Series Rack	BW896A
HP 842 1075mm Pallet Intelligent Series Rack	BW917A
HP 842 1075mm Shock Intelligent Series Rack	BW918A

**NOTE:** Please see the [HP Intelligent Series Racks QuickSpec](#) for information on additional racks options and rack specifications.

#### **HP Value Series Rack**

HP V142 1075mm deep Pallet 100 series Rack	AF046A
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**NOTE:** Please see the [HP Value Series Rack QuickSpec](#) for information on additional racks options and rack specifications.

#### HP Power Distribution Units (PDUs) **HP Basic Power Distribution Unit (bPDU)**

HP 1.9kVA 120 Volt L5-20 Input (12xNEMA 5-20R) NA/JP Basic PDU	H5M54A
HP 3.6kVA 200-240 Volt Detachable C20 Input ( 12xC13) WW Basic PDU	H5M56A
HP 2.8kVA 120 Volt L5-30 Input (18xNEMA 5-20R) NA/JP Basic PDU	H5M55A
HP 3.6kVA 200-240 Volt Detachable C20 Input (18xC13) WW Basic PDU	H5M57A
HP 4.9kVA 208 Volt L6-30 Input (20xC13) NA/JP Basic PDU	H5M58A
HP 7.3kVA 230 Volt IEC309 32A Input (20xC13) INTL Basic PDU	H5M68A
HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13) NA/JP Basic PDU	H5M61A
HP 4.9kVA 208 Volt L6-30 Input (24xC13/6xC19) NA/JP Basic PDU	H5M59A
HP 7.3kVA 230 Volt IEC309 32A Input (24xC13/6xC19) INTL Basic PDU	H5M70A
HP 8.3kVA 208 Volt CS8265C Input (30xC13/6xC19) NA/JP Basic PDU	H5M60A
HP 11kVA 230 Volt IEC309 63A Input (30xC13/6xC19) INTL Basic PDU	H5M71A

### Additional Options

HP Hardwired 200-240 Volt Input (30xC13/6xC19) WW Basic PDU	H5M75A
HP 5.7kVA 208 Volt L21-20 3-Phase Input (24xC13/3xNEMA 5-20R) NA/JP Basic PDU	H5M63A
HP 8.6kVA 208 Volt L21-30 3-Phase Input (24xC13/3xC19/3xNEMA 5-20R) NA/JP Basic PDU	H5M64A
HP 8.6kVA 208 Volt L15-30 3-Phase Input (24xC13/6xC19) NA/JP Basic PDU	H5M62A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/6xC19) INTL Basic PDU	H5M72A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (36xC13/6xC19) INTL Basic PDU	H5M73A
HP 11kVA 400 Volt IEC309 30A 3-Phase Input (36xC13/6xC19) NA Basic PDU	H5M67A
HP 13.2kVA 480 Volt IEC309 30A 3-Phase Input (15 Outlet) NA Basic PDU	H3X07A
HP 19.9kVA 480 Volt IEC309 30A 3-Phase Input (30 Outlet) NA Basic PDU	H3X08A
HP 800VA - 277V Input / 230V Output NA Rack Mount Transformer	H3X09A
HP 2.8kVA 24A Low Voltage NA/JP Modular Power Distribution Unit	252663-D71
HP 4.9kVA 24A High Voltage NA/JP Core Modular Power Distribution Unit	252663-D74
HP 8.3kVA 40A High Voltage NA/JP Core Modular Power Distribution Unit	252663-D75
HP 7.3kVA 32A High Voltage INTL Core Modular Power Distribution Unit	252663-B33
HP 9.2kVA 40A High Voltage INTL Core Modular Power Distribution Unit	252663-B34
HP 8.6kVA 24A Three Phase NA/JP Modular Power Distribution Unit	AF512A
HP 11kVA 16A Three Phase INTL Modular Power Distribution Unit	AF513A
HP 14.4kVA 40A Three Phase NA/JP Modular Power Distribution Unit	AF519A
HP 17.3kVA 48A Three Phase NA/JP Modular Power Distribution Unit	AF511A
HP 22kVA 32A Three Phase INTL Core Modular Power Distribution Unit	AF518A

**NOTE:** To learn more about HP Basic Power Distribution Units (bPDU), please visit the HP website at <http://www.hp.com/go/pdu>.

#### HP Monitored Power Distribution Units (mPDU)

HP 2.8kVA 120 Volt L5-30 Input (12xNEMA 5-20R)NA/JP Monitored PDU	D9N43A
HP 3.6kVA 200-240 Volt Detachable C20 Input (12xC13) WW Monitored PDU	D9N46A
HP 4.9kVA 208 Volt L6-30 Input (12xC13) NA/JP Monitored PDU	D9N44A
HP 3.6kVA 200-240 Volt Detachable C20 Input (16xC13) WW Monitored PDU	D9N45A
HP 4.9kVA 208 Volt L6-30 Input (12xC13) NA/JP Monitored PDU	G9Z05A
HP 7.3kVA 230 Volt IEC309 32A Input (12xC13) INTL Monitored PDU	G9Z06A
HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Monitored PDU	D9N47A
HP 7.3kVA 230 Volt IEC309 32A Input (20xC13/4xC19) INTL Monitored PDU	D9N48A
HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13/3xC19) NA/JP Monitored PDU	D9N51A
HP 5.7kVA 208 Volt L21-20 3-Phase Input (18xC13/3xNEMA 5-20R) NA/JP Monitored PDU	D9N52A
HP 8.6kVA 208 Volt L21-30 3-Phase Input (20xC13/3xC19/3xNEMA 5-20R) NA/JP Monitored PDU	D9N53A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (18xC13/3xC19) INTL Monitored PDU	D9N55A
HP 8.3kVA 208 Volt CS8265C Input (30xC13/3xC19) NA Monitored PDU	D9N49A
HP 7.3kVA 230 Volt IEC309 32A Input (32xC13/4xC19) INTL Monitored PDU	D9N50A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N57A

### Additional Options

HP 14.4kVA 208 Volt CS8365C 3-Phase Input (12xC13/12xC19)NA Monitored PDU	D9N58A
HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (30xC13/3xC19) NA Monitored PDU	D9N61A
HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (12xC13/12xC19) NA Monitored PDU	D9N62A
HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (24xC13/3xC19) NA/JP Monitored PDU	D9N54A
HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (12xC13/12xC19) NA/JP Monitored PDU	D9N59A
HP 17.3kVA 208 Volt IEC309 60A 3-Phase Watertight Input (12xC13/12xC19) NA/JP Monitored PDU	G9Z07A
HP 19.9kVA 480 Volt 3-Phase (30 Outlet) NA Monitored PDU	D9N63A
HP 22kVA 400 Volt IEC309 32A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N56A
HP 22kVA 400 Volt IEC309 32A 3-Phase Input (12xC13/12xC19) INTL Monitored PDU	D9N60A
HP 22kVA 400 Volt IEC309 32A 3-Phase Watertight Input (12xC13/12xC19) INTL Monitored PDU	G9Z08A
HP Environmental Sensor for Remote Monitored PDUs	E2D53A
<b>NOTE:</b> Please see the <a href="#">HP Monitored Power Distribution Units QuickSpec</a> for information on additional options and product specifications	
<b>HP Intelligent Power Distribution Units (iPDU)</b>	
HP 4.9kVA 24A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF520A
HP 8.3kVA 40A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF521A
HP 8.6kVA 24A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF522A
HP 17.3kVA 48A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF523A
HP 11.4kVA 16A 415V Three Phase L22-20 NA Core Intelligent Power Distribution Unit	AF900A
HP 17.3kVA 24A 415V Three Phase IEC309 NA Core Intelligent Power Distribution Unit	AF901A
HP 7.3kVA 32A Single Phase INTL Core Intelligent Modular Power Distribution Unit	AF525A
HP 11kVA 16A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF526A
HP 22kVA 32A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF527A
HP 17.3kVA 48A 208V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF535A
HP 17.3kVA 24A 415V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF537A
HP 22kVA 32A 400V Three Phase 12 Outlet Core INTL Intelligent Power Distribution Unit	AF538A
HP 4.9kVA 24A Single Phase NA/JP Intelligent Modular Power Distribution Kit	AF531A
HP 8.6kVA 24A Three Phase NA/JP Intelligent Modular Power Distribution Kit	AF532A

### Additional Options

HP 14.4kVA 40A Three Phase NA/JP Intelligent Modular Power Distribution Unit	AF533A
HP 7.3kVA 32A Single Phase INTL Intelligent Modular Power Distribution Kit	AF534A
HP 5xC13 Intelligent PDU Extension Bar G2 Kit	AF547A
HP 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar	AF528A
<b>NOTE:</b> Please see the <a href="#">HP Intelligent Power Distribution Units QuickSpec</a> for information on additional options and product specifications.	
<b>HP Managed Power Distribution Units (maPDU)</b>	
HP 2.8kVA 120 Volt L5-30 Input (24x NEMA 5-20) NA/JP Managed PDU	H8B48A
HP 3.6kVA 200-240 Volt Detachable C20 Input (7xC13/1xC19) WW Managed PDU	H8B49A
HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Managed PDU	H8B50A
HP 7.3kVA 200-240 Volt IEC309 32A Input (20xC13/4xC19) INTL Managed PDU	H8B51A
HP 8.6kVA 208 Volt L15-30 3 Phase Input (18xC13/6xC19) NA/JP Managed PDU	H8B52A
HP 8.6kVA 208 Volt L21-30 3 Phase Input (20xC13/3xC19/1x NEMA 5-20) NA/JP Managed PDU	H8B53A
HP 11kVA 400 Volt IEC309 16A 3 Phase Input (21xC13/3xC19) INTL Managed PDU	H8B54A
HP 14.4kVA 208V CS8365C 3 Phase Input (12xC13/12xC19) NA/JP Managed PDU	H8B55A
HP 17.3kVA 208V IEC309 60A 3 Phase Input (12xC13/12xC19) NA/JP Managed PDU	H8B56A

**NOTE:** Please see the [QuickSpecs for Technical Specifications and additional information: <http://www8.hp.com/h20195/v2/GetHtml.aspx?docname=c04376673>](#) (Worldwide)

**NOTE:** To learn more, please visit the [HP Uninterruptible Power Systems \(UPS\) web page](#).

### HP Rack Mount Consoles, KVM Switches, and Keyboards

#### HP Rack Mount Consoles

HP TFT7600 G2 KVM Console Rackmount Keyboard US Monitor	AZ870A
HP TFT7600 G2 KVM Console Rackmount Keyboard UK Monitor	AZ871A
HP TFT7600 G2 KVM Console Rackmount Keyboard DE Monitor	AZ872A
HP TFT7600 G2 KVM Console Rackmount Keyboard FR Monitor	AZ873A
HP TFT7600 G2 KVM Console Rackmount Keyboard IT Monitor	AZ874A
HP TFT7600 G2 KVM Console Rackmount Keyboard ES Monitor	AZ875A
HP TFT7600 G2 KVM Console Rackmount Keyboard DK Monitor	AZ876A
HP TFT7600 G2 KVM Console Rackmount Keyboard NO Monitor	AZ877A
HP TFT7600 G2 KVM Console Rackmount Keyboard SE/FI Monitor	AZ878A
HP TFT7600 G2 KVM Console Rackmount Keyboard CH Monitor	AZ879A
HP TFT7600 G2 KVM Console Rackmount Keyboard PT Monitor	AZ880A
HP TFT7600 G2 KVM Console Rackmount Keyboard BE Monitor	AZ881A
HP TFT7600 G2 KVM Console Rackmount Keyboard JP Monitor	AZ882A
HP TFT7600 G2 KVM Console Rackmount Keyboard RU Monitor	AZ883A
HP TFT7600 G2 KVM Console Rackmount Keyboard Intl Monitor	AZ884A
HP TFT7600 G2 KVM Console Rackmount Keyboard US TAA Monitor	AZ885A

**NOTE:** Please see the [HP Rack Console QuickSpecs](#) for information on additional options and product specifications.

#### HP KVM Switches

HP Server Console 0x2x8 Port Analog Switch	AF616A
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### Additional Options

HP Server Console 0x2x16 Port Analog Switch	AF617A
HP TAA 0x2x16xKVM Server Console G2 Switch	AF626A
HP KVM Console USB Interface Adapter	AF628A
HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A
HP KVM Console USB 2.0 Virtual Media CAC Interface Adapter	AF629A
HP 1x4 USB/PS2 KVM Console Switch	AF611A
HP 1x1Ex8 KVM IP Console Switch G2 with Virtual Media CAC Software	AF620A
HP 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software	AF621A
HP 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software	AF622A

**NOTE:** To learn more, please visit the [HP KVM Switches web page](#).

#### HP USB Keyboard and Mouse

HP USB BFR with PVC Free US Keyboard/Mouse Kit	631341-B21
HP USB BFR with PVC Free UK Keyboard/Mouse Kit	631344-B21
HP USB BFR with PVC Free FR Keyboard/Mouse Kit	631346-B21
HP USB BFR with PVC Free ES Keyboard/Mouse Kit	631348-B21
HP USB BFR with PVC Free DE Keyboard/Mouse Kit	631358-B21
HP USB BFR with PVC Free JP Keyboard/Mouse Kit	631360-B21
HP USB BFR with PVC Free IT Keyboard/Mouse Kit	631362-B21
HP USB BFR with PVC Free CN Keyboard/Mouse Kit	631364-B21
HP USB BFR with PVC Free AE Keyboard/Mouse Kit	638212-B21
HP USB BFR with PVC Free RU Keyboard/Mouse Kit	638214-B21
HP USB BFR with PVC Free IN Keyboard/Mouse Kit	672097-D63
HP USB BFR with PVC Free AP-Intl Keyboard/Mouse Kit	672097-373
HP USB BFR with PVC Free Intl Keyboard/Mouse Kit	672097-B33
HP USB BFR with PVC Free PT Keyboard/Mouse Kit	672097-133
HP USB BFR with PVC Free TR Keyboard/Mouse Kit	672097-143
HP USB BFR with PVC Free CZ Keyboard/Mouse Kit	672097-223
HP USB BFR with PVC Free FI Keyboard/Mouse Kit	672097-353
HP USB BFR with PVC Free SE Keyboard/Mouse Kit	672097-103
HP USB BFR with PVC Free CH Keyboard/Mouse Kit	672097-113
HP USB BFR with PVC Free KR Keyboard/Mouse Kit	672097-KD3

**NOTE:** Please see the [HP USB Keyboard and Mouse QuickSpecs](#) for information on additional options and product specifications.

### Additional Options

<b>HP Uninterruptible Power Systems (UPS)</b>	<b>HP Rack-mountable UPS</b>	
	<b>HP R1500 G3 Uninterruptible Power Supply (UPS)</b>	
	HP R1.5kVA G3 1U INTL Uninterruptible Power System	AF471A
	HP R1.5kVA G3 1U JP/TW Uninterruptible Power System	AF470A
	HP R1.5kVA G3 1U NA Uninterruptible Power System	AF469A
	<b>HP R/T3000 Uninterruptible Power System (UPS)</b>	
	HP R/T3000 G2 2U L530 Low Voltage NA/JP Uninterruptible Power System	AF466A
	HP R/T3000 G2 2U L620 High Voltage NA/JP Uninterruptible Power System	AF467A
	HP R/T3000 G2 2U Detachable Cord High Voltage INTL Uninterruptible Power System	AF468A
	<b>R5000 Uninterruptible Power System (UPS)</b>	
	HP R5KVA 3U IEC309-32A High Voltage INTL Uninterruptible Power System	AF461A
	HP R5KVA 3U L630 High Voltage NA/JP Uninterruptible Power System	AF460A
	<b>R7000 Uninterruptible Power System (UPS)</b>	
	HP R7KVA 4U IEC-32A High Voltage INTL Uninterruptible Power System	AF463A
	HP R7KVA 4U 50A High Voltage NA/JP Uninterruptible Power System	AF462A
	<b>HP T750 G2 UPS Models</b>	
	HP T750 G2 750VA NA Tower Uninterruptible Power System	AF446A
	HP T750 G2 750VA INTL Tower Uninterruptible Power System	AF447A
	HP T750J JP Uninterruptible Power System	AF456A
	<b>HP T1000 G3 UPS Models</b>	
HP T1000 G3 1000VA INTL Tower Uninterruptible Power System	AF449A	
<b>HP T1500 G3 UPS Models</b>		
HP T1500 G3 1400VA NA Tower Uninterruptible Power System	AF450A	
HP T1500 G3 1400VA INTL Tower Uninterruptible Power System	AF451A	
<b>NOTE:</b> To learn more, please visit the <a href="#">HP Uninterruptible Power Systems (UPS) web page</a> .		

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<b>HP USB and SD Options</b>	<b>HP Enterprise Mainstream Flash Media Kits for Memory Cards</b>	
	HP 32GB microSD Enterprise Mainstream Flash Media Kit	700139-B21
	HP 8GB microSD Enterprise Mainstream Flash Media Kit	726116-B21
	HP 8GB USB Enterprise Mainstream Flash Media Drive Key Kit	737953-B21

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### Additional Options

#### HP Care Pack Services Installation & Start-up Services

HP Install DL60/DL80 SVC	U7WZ5E
HP Startup DL60/DL80 Service	U7WZ7E

#### Foundation Care

HP 3y Nbd DL80 Gen9 FC Service	U7WG1E
HP 3y Nbd w/DMR DL80 Gen9 FC Service	U7WG2E
HP 3y Nbd w/CDMR DL80 Gen9 FC Service	U7WG3E
HP 3y 24x7 DL80 Gen9 FC Service	U7WG4E
HP 3y 24x7 w/DMR DL80 Gen9 FC Service	U7WG5E
HP 3y 24x7 w/CDMR DL80 Gen9 FC Service	U7WG6E

#### Proactive Care

HP 3y 24x7 DL80 Gen9 PC Service	U7WK1E
HP 3y 24x7 w/DMR DL80 Gen9 PC SVC	U7WK2E
HP 3y 24x7 w/CDMR DL80 Gen9 PC SVC	U7WK3E

### Memory

#### Memory Subsystem Architecture

Each Intel® Xeon® E5-2600v3 family processor socket contains four memory channels per installed processor with one DIMM per channel for a total of four (4) DIMMs or a grand total of eight (8) DIMMs for the server.

#### Memory Population guidelines



#### General Memory Population Rules and Guidelines:

- .Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed in a two processor system, only half of the DIMM slots are available.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors and load the channels similarly whenever possible.
- When two processors are installed, balance the DIMMs across the two processors.
- White DIMM slots denote the first slot to be populated in a channel.
- Do not mix RDIMMs or LRDIMMs.
- Quad rank RDIMMs are not supported in HP ProLiant DL80 Gen9 servers.
- DIMMs of different speeds may be mixed in any order; the server will select a common optimal speed.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- The maximum memory capacity is a function of the memory type and number of installed processors.
- To realize the performance memory capabilities listed in this document, HP SmartMemory is required.

Intel Gen9 Supported Memory Bandwidth for HP ProLiant Gen9 Intel® Xeon®E5-2600v3 Series Processor Family

Memory Bandwidth and Capacity						
[DIMM Type]	Registered DIMMS (RDIMMs)				Load Reduced (LRDIMMs)	Unbuffered with ECC DIMMs (UDIMMs)
DIMM Rank	Single Rank		Dual Rank		Quad Rank	
DIMM Capacity	4GB	8GB	16GB		32GB	
Voltage	Std Voltage 1.2V					
SLOTS THAT CAN BE POPULATED						
8 slot servers	8	8	8	8	8	8
MAXIMUM CAPACITY (GB)*	32	64	64	128	128	256
1 DIMM Per Channel	2133					

#### DIMM slot and configuration diagram

#### DIMM slot and configuration diagrams Basic memory slot & population diagram

- Population order; start with "A" first, "B" second, "C" third, etc.
- When one processor is installed, install DIMMs in sequential alphabetic order: A, B, C, D, E, F ...
- When two processors are installed, install DIMMs in sequential alphabetic order: CPU1-A, CPU2-A,CPU1-B,CPU2-B,CPU1-C, CP2-C

CPU #1 IS PROCESSOR ON LEFT - LOOKING FROM FRONT OF SERVER

### Memory

	CPU1		CPU2		
	Slot #	population order	Slot #	population order	
Chnl 1	1	A1	1	A1	
	Slot #	population order	Slot #	population order	
	CPU1		CPU2		
Chnl 2	2	B2	2	B2	
	CPU1		CPU2		
	Slot #	population order	Slot #	population order	
Chnl 4	3	D3	3	D3	
	CPU1		CPU2		
	Slot #	population order	Slot #	population order	
Chnl 3	4	C4	4	C4	

### Memory Speed by Processor Model

Processor Models	Supported Memory Speeds
E5-2603v3, E5-2609v3,	1600MHz
E5-2620v3, E5-2630v3, E5-2630Lv3, E5-2640v3, E5-2623v3,	1866MHz
E5-2650v3, E5-2660v3, E5-2650Lv3,	2133MHz

### Standard and Maximum Memory Capacity (Pre-configured Models)

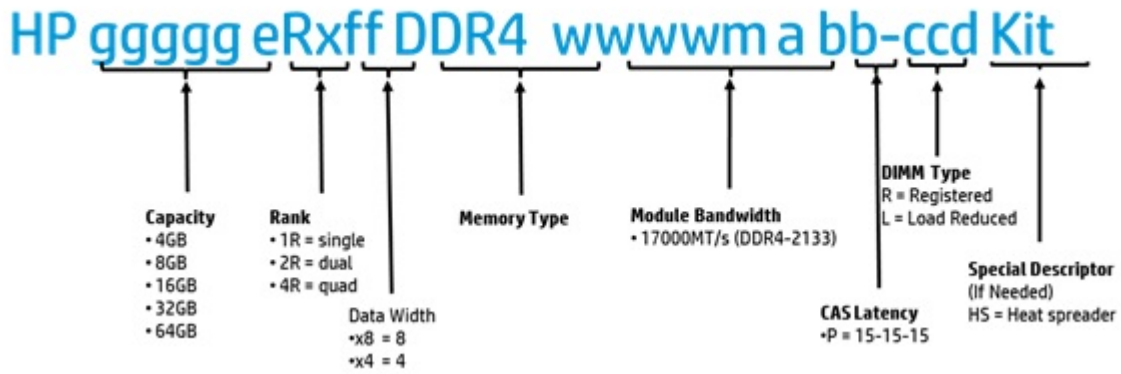
Pre-Configured Models	Standard Memory	Maximum Memory Plus Optional Memory	Standard Memory Replaced with Optional Memory
E5-2603v3,	4GB (1x4GB)	116GB (7x16GB, 1x4GB)	256GB (8x32GB)
E5-2609v3,	8GB (1x8GB)	120GB (7x16GB, 1x8GB)	256GB (8x32GB)

DDR4 memory options part number decoder

**NOTE:** Capacity references are rounded to the common Gigabyte values.

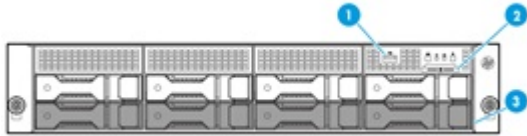
- 2GB = 2,048MB
- 4GB = 4,096MB
- 8GB = 8,192MB
- 16GB = 16,384MB
- 32GB = 32,768MB
- 64GB = 65,536MB

### Memory



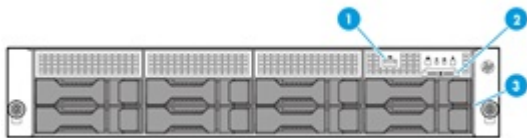
### Storage

#### 4-bay LFF non-hot-plug drive model



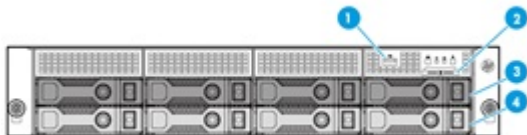
1-4 4 x LFF SATA/SAS/SSD Hot Pluggable Hard Drives Bays

#### 8-bay LFF non-hot plug drive model



1-8 8 x LFF SATA Non- Hot Pluggable Hard Drive Bays

#### 8-bay LFF hot-plug drive model



1-8 8 x LFF SATA/SAS/SDD Hot Pluggable Hard Drive Bays

#### 12-bay LFF hot-plug drive model



1-12 12 x LFF SATA/SAS/SDD Hot Pluggable Hard drive bays

### Technical Specifications

<b>System Unit</b>	<b>Dimensions</b> (with bezel)	3.45 x 18.98 x 24.97 in (8.75 x 44.55 x 60.7 cm)	
	<b>Weight</b> (approximate)	Maximum:	47/6 lb (21.59 kg)
		Minimum:	36.58 lb (16.59 kg)
	<b>Input Requirements</b>	Rated Line Voltage	100 to 240 VAC
		Rated Input Current	For 550W Power Supply:
			6.7 A (at 100 VAC) 3.3 A (at 200 VAC)
		Rated Input Frequency	47 to 63 Hz
		Rated Input Power	For 550 W Power Supply: < 670 W (at 100 VAC), < 660 W (at 200 VAC),
	<b>BTU Rating</b>	Maximum	For 550 W Power Supply: 2201 BTU/hr (at 100 VAC), 2153 BTU/hr (at 200 VAC)
	<b>Power Specifications</b>	To review typical system power ratings use the Power Advisor which is available via the online tool located at URL: <a href="http://www.hp.com/go/proliant-energy-efficient">http://www.hp.com/go/proliant-energy-efficient</a> or <a href="http://www.hp.com/go/hppoweradvisor">http://www.hp.com/go/hppoweradvisor</a> - Click on the system of interest. Example: DL80 Gen9- Follow the instructions of the next screens.	
<b>Power Supply Output</b>	Rated Steady-State Power	For 550 W Power Supply: 550 W (at 100 VAC), 550 W (at 200 VAC),	
	Maximum Peak Power	For 550 W Power Supply: 550 W (at 100 VAC), 550 W (at 200 VAC),	
<b>System Inlet Temperature</b>	Standard Operating Support	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change may be limited by the type and number of options installed. System performance during standard operating support may be reduced if operating with a fan fault or above 30°C (86°F).	
	Extended Ambient Operating Support	For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: <a href="http://www.hp.com/servers/ashrae">http://www.hp.com/servers/ashrae</a>	
	Non-operating	System performance may be reduced if operating in the extended ambient operating range or with a fan fault.  <b>NOTE:</b> Supports A3 extended ambient. -30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).	

### Technical Specifications

<b>Relative Humidity</b> (non-condensing)	Operating	Minimum to be the higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity. Maximum to be the lower (less moisture) of 24°C (75.2°F) dew point or 90% relative humidity.
	Non-operating	5% to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
<b>Altitude</b>	Operating	3048 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
<b>Acoustic Noise</b>	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
	<b>Idle</b>	
	LWAd	Entry: 4.8 B Base: 4.7 B
	LpAm	Entry: 34 dBA Base: 33 dBA
	<b>Operating</b>	
	LWAd	Entry: 4.9 B Base: 4.9 B
	LpAm	Entry: 34 dBA Base: 36 dBA
<b>Emissions Classification (EMC)</b>	FCC Rating	Class A
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS14336-1; CNS13438; GB4943; GB9254; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

**NOTE:** Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.

**NOTE:** The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.

### Technical Specifications

<b>HP Dynamic Smart Array B140i Controller</b>	<b>Number of PCI links</b>	Four
	<b>PCI link rate</b>	4 Gb/s
	<b>Storage protocol support</b>	SATA
	<b>SAS/SATA peak data transfer rate</b>	6 Gb/s
	<b>Number of SAS/SATA links</b>	10 links
	<b>SAS/SATA connectivity</b>	2x4 connectors; 2x1 connectors
	<b>Expander support</b>	No
	<b>Drives supported (max)</b>	Up to 10 Internal Drives
	<b>RAID support</b>	0, 1, 10, 5 SATA
	<b>Software management</b>	HP SSA, SMH, SIM
	<b>Warranty</b>	Server warranty
	<b>HP Secure Encryption license</b>	Not Supported
	<b>HP SmartCache License</b>	Not Supported
<b>HP Smart Storage Administrator</b>	Supported	

<b>HP Embedded Dual Port 361i Adapter</b>	<b>Network Interface Compatibility</b>	10Base-T/100Base-TX/1000Base-TX	
		IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
		IEEE 1588, IEEE 802.1AS	
		IEEE 802.3az - Energy Efficient Ethernet (EEE)	
	<b>Ports</b>		
	<b>Data Transfer Method</b>	PCI Express v 2.0, 5.0 GT/s, two lanes (x2)	
	<b>Controller</b>	Intel I350 Powerville	
		10Base-T (Half-Duplex)	10 Mb/s per port, 40 Mb/s combined
		10Base-T (Full-Duplex)	20 Mb/s per port, 80 Mb/s combined
	<b>Network Transfer Rate</b>	100Base-TX (Half-Duplex)	100 Mb/s per port, 400 Mb/s combined
		100Base-TX (Full-Duplex)	200 Mb/s per port, 800 Mb/s combined
	1000Base-TX (Half and Full-Duplex)	1000Mb/s per port, 4000 Mb/s combined	
<b>Connector</b>	Two RJ-45		
<b>Cable Support</b>	10 Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)	
	10/100/1000 Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)	

### Technical Specifications

#### Environment-friendly Products and Approach

#### End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: <http://www.hp.com/go/green>. To recycle your product, please go to: <http://www.hp.com/go/green> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.



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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less